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ABSTRACT

This report presents the major activities, funding requirements, effectiveness, and demonstrated need for the Minnesota Career Information System (MCIS). The report begins by providing an overview of the history and authorization of the MCIS and considering its purpose and goals. The operation of MCIS is discussed in terms of its four basic components, the procedure followed by users, files, and the two delivery options. Also described are enhancements that were implemented or planned to build a more comprehensive system so that career guidance processes may be fostered. Other topics include services and other support materials offered and the advisory council. Measures of the effectiveness of MCIS are also described. Need for MCIS is demonstrated through a list of examples of agencies and support and cooperation they have provided and a list of targeted sites for marketing. The MCIS fiscal perspective details income and expenditures for fiscal year (FY) 1985 (actual), FY 1986 (estimated), and FY 1987 (projected). Recommendations are listed for the legislature and for MCIS operation. The rationale for each one is provided. Addenda consist of a list of advisory council members and a table comparing the career information systems of 14 states. (YLB)

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REPORT TO THE LEGISLATURE

ON THE

MINNESOTA CAREER INFORMATION SYSTEM

Prepared in accordance with
Executive Order No. 83-20
and
Minnesota Laws 1979, Chapter 335
Section 3, Subdivision 15

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January 15, 1986

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THE MINNESOTA CAREER INFORMATION SYSTEM

Pursuant to Minnesota laws 1979, Chapter 335, Section 3, Subdivision 15, this report presents the major activities, funding requirements, effectiveness, and demonstrated need for the Minnesota Career Information System (MCIS).

History and Authorization

The Minnesota Career Information System (MCIS) was originally established in 1975 as the Minnesota Occupational Information Services (MOIS) with CETA funds provided by the U.S. Department of Labor. Federal funds were decreased each year, with funding to be taken over by the states and by user fees. Executive Order No. 147 established the Minnesota Higher Education Coordinating Board as personnel and fiscal agent. Executive Order 79-35 transferred MOIS, now to be called MCIS, to the Department of Education, but without staffing or funding. Executive Order 83-20 continued MCIS and its advisory council and authorized accepting federal funds. Minnesota Laws for 1983, Chapter 258, Section 26, further authorized the Department of Education to collect reasonable fees for subscriptions to MCIS. Presently, MCIS operation is in the Pupil Personnel Services Section which has always regarded career guidance as a primary function of its services.

From the beginning (1976), MOIS used the mainframe computer at Minnesota Educational Computing Consortium (MECC) as the prime mechanism for service delivery. However, by 1982, due to increased timeshare costs and information being outdated, the number of subscribers was reduced by almost one half. At this point it was decided to explore other delivery systems. Following a state survey of schools and other users in the Spring of 1982 and in keeping with the national trend, it was decided to provide career information via microcomputer enhanced by a hard disk to accommodate all the storage needed for a large information system. Additionally, some schools wanted limited computer usage combined with printed references.

Today, MCIS has subscriptions to over 100 microcomputer/hard disk sites and ranks first in such sites among seventeen states in the National Career Information Consortium. Within computer-assisted guidance circles, this growth in three years is considered extraordinary.

Internally, MCIS has also expanded its career guidance software and publications products to serve a variety of populations with special needs and age groups from junior high through adulthood.

The Purpose of MCIS

The goals of MCIS can be paraphrased from earlier goals enunciated by its original sponsors, the U.S. Department of Labor. They are as follows:

1. Help learners of all ages discover and understand the range of career opportunities presently available and likely to be available in the future;
2. Help entrants into the labor force become aware of occupations that they would find acceptable and personally satisfying;
3. Encourage people in the process of career exploration and decision making to seek out vocational information on their own;

4. Increase awareness of major sources of occupational information for the purpose of acquiring knowledge of occupations and training; and
5. Provide support for related programs, including career education, career employment counseling, and manpower and education planning.

More recently, JoAnn Harris-Bowlsbey*, a national authority in the field, has recently identified a broader set of goals:

1. Support strong, positive self-concept formation, including sense of autonomy, internal locus of control, and positive role models;
2. Assist with the understanding of personal characteristics such as interests, abilities, and values;
3. Assist with the learning or awareness of effective, perhaps even planful, decision-making styles;
4. Assist with the acquisition of vocational coping skills such as planning ahead and knowing where to find and how to use resources;
5. Assist with the development of awareness of the breadth and richness of career and of the ability to take control of it.

She goes on to point out that while the computer may serve a more limited role as an information resource to a counselor-delivered program of career guidance, future applications of technology in her view would support broader functions and include monitoring, teaching, and supporting the career development process. It is these latter domains that enchancements to MCIS are being considered and added. In many ways, the computer software provides a monitoring function for counselors who may drift from their proper guidance course by letting themselves become involved in non-guidance duties.

OPERATION OF MCIS

MCIS is operated to provide a state specific, dynamic, career information system which is affordable and upgraded to current microtechnology. The system is organized into four basic components.

Career Exploration

A key element is the search mechanism called QUEST which sorts MCIS careers according to responses to 21 self-evaluative questions. In its simplest sense, QUEST is designed to help users apply what they know about their interests and abilities to better understand the world of work.

Another assessment tool, called Micro Skills, sorts job skills to create a personally relevant list of occupations. This procedure asks the user to identify from a list of 72 skills, ones they feel they possess (or are willing to develop through training) and would like to use in a career. It is especially useful with older college/vocational students, Vocational Rehabilitation clients, JTPA clients, midlife career changers and displaced homemakers.

*Harris-Bowlsbey, JoAnn "The computer and career development." Journal of Counseling and Development, Vol. 63, No. 3, 1984, pp, 145-148.

Occupations File

With the list of occupations sorted by QUEST or Micro Skills, the user next accesses the Occupations file which provides descriptions of 280 major occupations covering 95% of our state work force. Current information is gathered through expert field contacts, Minnesota Department of Jobs and Training surveys, labor market statistics, census data, other state agencies, trade unions, employers, and state licensing boards. Statements describe the nature of tasks performed by workers, abilities and interest associated with the occupation, working conditions including health hazards, entry wages, number of workers employed and the employment outlook. Bibliographic cross-referencing offers the user sources of further information.

Preparation File

Companion file to the Occupations file is the Preparation file which focuses on the general background requirements for entering an occupation. It includes a list of high school courses which are helpful, training requirements, licensing, if any, advancement, employment hints, and cross-references the user to the Program file.

Programs of Study and Training File

The Program file contains descriptions of programs offered at the 200 postsecondary schools in Minnesota. Each program begins with a general description and then identifies names of schools where training and education are provided and the degrees (or diplomas) offered. Program admission, typical course work and graduation requirements are described.

Minnesota Postsecondary School File

The School file consists of descriptions of 200 postsecondary colleges, universities, vocational technical schools, teaching hospitals and professional schools in Minnesota. The information in the School file is designed for use in the current academic year. Information is presented on up to 103 topics for each school. Using Micro MCIS it is possible for a student to compare at least three schools at a time on a topic-to-topic basis. The School file helps answer questions about school size, financial aid, housing costs, programs of study, services for handicapped students, tuition, fees, and other expenses.

National College File

This file provides information on 2000 four-year colleges and graduate schools in the country. The annually updated information is organized under 95 topics and students may compare data from three schools at a time via computer. Some of the major topics include: school size, programs of study, tuition, housing, financial aid, student services, handicap accommodations, and intercollegiate sports.

Physical & Mental Demands File
With Job-Site Modifications

This special file was developed by MCIS for the Division of Vocational Rehabilitation Services. It covers 212 MCIS occupations and provides explicit information on the physical and mental demands of each occupation which is helpful in working with the handicapped student or worker. Additionally, it

provides information on how many occupations have been modified at the worksite to accommodate a given functional disability. The file is available in hard copy from MCIS. Computerization of this information is planned.

Methods of Delivery

Sites are offered two delivery options:

Option 1. Micro QUEST: consists of one floppy disk containing the search mode, QUEST, plus all information files (Occupations, Schools and Programs) in four printed volumes. Micro Skills is available as an option on a floppy disk.

Option 2. Micro MCIS: allows QUEST and all the information files to be accessed by a microcomputer (Apple IIe or IBM PC). This is possible for sites that have a hard disk interfaced to a microcomputer to accommodate the large storage needed. Networking of MCIS in a computer lab connecting 20-30 Apples to host Apple/hard disk is also possible.

Micro MCIS is the first state career information system in the country to go completely to a microcomputerized delivery. Additionally, Minnesota is the first state to network its career information system through a computer lab making multiple, simultaneous use by students possible. All other states continue to use a single terminal, single user system on a state or regional basis.

ENHANCEMENTS

A number of enhancements to MCIS were implemented or planned this year to build a more comprehensive system so that career guidance processes may be fostered.

A State-National Scholarship/Financial Aids File which provides information for students and their families about scholarships, grants-in-aid, fellowships, honor awards, educational loans and work-study programs is available in Minnesota and nationally. A grant from the Minnesota Academic Excellence Foundation provided a printed copy for each high school in the state. Additional funds are being sought to develop software to put this important file on the computer.

The Military Occupations File is a file of 200 military occupations being developed in cooperation with the National Career Information System under a grant from the Department of Defense. It will be established as a separate file with cross-references to other files particularly the MCIS occupations file. This file is planned for piloting in the spring of 1986.

DISCOVER, a nationally oriented career information system has been added as an option to accommodate those schools and agencies desiring to complement MCIS which is a state-data based system. Through an agreement with the American College Testing Corporation (ACT), it is possible to provide Minnesota users with this software at a reduced cost.

The High School Planner is a guidance tool with a computer-based procedure for helping students select their four-year high school courses in relation to their career choices and postsecondary training plans. It is linked to the MCIS system in concept. A pilot project of this software was begun in the fall of 1985 with five or six sites.

SERVICES AND OTHER SUPPORT MATERIALS

Inservice Training is provided on a periodic, regional basis to enable use of MCIS with expertise and ease. Regional workshops are planned annually.

The Implementation Handbook explains the step-by-step process of MCIS, QUEST, and Micro Skills and the role of site coordinators is detailed. A technical aid section provides information on the microcomputer/hard disk system. A resource section provides additional information for counselors and MCIS coordinators.

The User's Handbook contains information about MCIS and instruction on how to use the system. Information about the files, computer commands, Job Search Information, and National School information is included.

The MCIS Newsletter keeps users informed on various aspects of MCIS and is periodically published. State and National CIS news, general information, updates on enhancements, and special articles are featured.

ADVISORY COUNCIL

The Governor's Advisory Council meets on a quarterly basis and reviews the progress of MCIS activity (see list of members attachment A). The Council is chaired by Prof. W. Wesley Tennyson of the University of Minnesota. Primary concerns of the Council include stablizing MCIS income from user fees and decreasing dependency on grants now that the transition from mainframe to microcomputers has been completed; developing a market plan and recommending enhancements to MCIS.

EFFECTIVENESS

A key indicator of the effectiveness of MCIS can be measured by the growth in subscriptions to Micro-MCIS, the fully computerized version. These subscriptions now total 100 sites representing nearly a 40% growth from last year. Sites operating this version have special significance because the initial hardware costs and higher annual fees paid by these users indicate to us a long-term commitment to use MCIS.

Another measure of effectiveness is the addition of two new guidance software programs linked to MCIS in concept.

High School Planner is designed to help students plan their high school courses in relation to their career and postsecondary training plans. This is especially useful in settings using Outcome Based Education strategies.

Micro Skills is an assessment tool which allows the user to self-rate work skills and arrive at a list of careers suitable to their skill choices. This program is most useful for adults and was adapted for Minnesota by MCIS staff.

Enhancements to the basic MCIS program were also implemented in 1985 and include the following:

> National School Sort -- This program enables the user to sort national schools based on seven different criteria.

Postsecondary Enrollment Options Information -- Contact persons for every eligible institution are now included in the School file.

Inservice training -- Over 150 counselors and computer coordinators attended regional workshops this fall to receive training in the use of MCIS materials. Regional workshops will be held annually.

MCIS overcame some difficult transitions in 1985. On June 30th, Reynold Erickson, Supervisor of Pupil Personnel Services, retired, along with Dr. G. Dean Miller, Counseling Specialist and Director of MCIS. Dean's retirement was of special concern for MCIS since he was instrumental in the development of the program and was heavily involved in its day-to-day operation.

Through the efforts of the current MCIS staff in assuming Dean's former MCIS reponsibilities on top of their own, work on updating MCIS was completed on schedule and all new projects were executed as planned.

A transition in funding sources also occurred so that MCIS operates more self-sufficiently in 1986. After October 1, the State Department of Education no longer provided indirect costs or secretarial salaries through block grant money as before.

Since MCIS was mandated by the legislature to operate through grants and user fees, and since the major developmental phase of MCIS had been completed, these fiscal policy changes were expected.

Funding support does remain a concern and efforts are needed to increase funding sources. More staff are needed to distribute workloads more evenly and maintain the highest possible standards of accuracy in information and state-of-the-art in systems design and delivery. In the meantime, MCIS continues to operate what is probably the most cost efffective system of its kind in the nation (See Table 1).

DEMONSTRATION OF NEED

School counselors have always felt the need for current, accurate, comprehensive information regarding career and postsecondary training opportunities. The results of a survey in the spring of 1982 wherein nearly 300 schools indicated an interest in continuing to be able to have computerized career information is evidence of this need. The significant growth in Micro-MCIS subscriptions also supports this notion.

Support and cooperation has also been provided by a number of state agencies and boards. The list below provides an example of this:

Agency	Support Examples
Division of Vocational Rehabilitation Services	Nearly $20,000 worth of subscriptions for MCIS materials used by their counselors throughout the state.
Minnesota Committee on Academic Excellence	Grant to update and publish Scholarships and other Financial Aids for Minnesota Students.

Agency	Support Examples
Minnesota Occupational Information Coordination Committee (MOICC)	Funds to assist them in the development of an OIS (occupational information system) to be used by educational planners. Eventually a link will be established between MCIS and OIS to share data.
Research Office, Department of Jobs and Training	Provided wage, employment statistics, and outlook data for 125 occupations.
High Tech Education Legislation	MCIS software qualifies for a 25% reimbursement to its subscribers.
Hennepin Technical Centers Intermediate School District #287	Funds to implement High School Planner software to Minnesota.

Despite the growth and support received in 1985, there is the potential for expanding MCIS to many more locations. Besides secondary schools, which are the primary users, the list below represents targeted sites for marketing in 1986.

Site	Targeted Needs
Area Vocational Technical Institutes	Need for better intake assessment of students to match career goals and abilities with program goals and demands.
Community Colleges	Unhappiness with present Career Information System.
Public Libraries	Increasing use of computer hardware compatible with MCIS software and the "natural" setting for providing career information.
JTPA and Human Services Agencies	Potential linkage of MCIS with IRIS system proposed in reorganization of Department of Jobs and Training.

MCIS FISCAL PERSPECTIVE

INCOME

Income Sources	Actual Income F.Y. '85	Estimated Income F.Y. '86	Projected Income F.Y. '87
Service Charges for MCIS Components	$ 74,000	$120,000	$170,000
Grants to MCIS	48,000	17,000	unknown
Federal & Grant Support from MDE	32,000	13,500	-0-
Use of State Supported Staff	40,000	4,400	-0-
TOTAL	**$194,000**	**$164,000**	**$170,000**

EXPENDITURES

Expenditure Sources	Actual Expenditures F.Y. '85	Estimated Expenditures F.Y. '86	Projected Expenditures F.Y. '87
Staff and Contracted Workers	$110,000	$ 75,000	$ 98,000*
Contract with National CIS	21,300	35,500	8,300**
Printing, Discs, Training, Travel, etc.	55,000	40,000	40,000
Indirect Cost	8,000	13,500	23,700
TOTAL	**$194,000**	**$164,000**	**$170,000**

* Management and rent not included in income or expenditures, but provided with state funds

** Plus any new enhancements

Explanation of Fiscal Perspective

Income

Service Charges for MCIS Components	--	User fees for all software and publications.
Grants	--	In F.Y. '86, $170,000 represents $13,000 from Hennepin Technical Center grant to bring High School Planner to Minnesota. $4,000 represents contract for assistance with OIS development.
Federal and Grant Support from MDE	--	In F.Y. '86, represents partial funding of one secretary salary. After October 1, this support ended.
Use of State Supported Staff	--	In F.Y. '86, represents salary to Terry Hamm for temporary replacement of Dean Miller who retired.

Expenditures

Staff	--	Decrease from F.Y. '85 to F.Y. '86 represents completion of major developmental phase. Staff increase in F.Y. '87 reflects growth in subscriptions to be serviced and implementation of new programs.
Contract with National CIS	--	Operator's fees for license, software development, and technical support. F.Y. '87 represents minimum costs.
Printing, Disks, Training, Travel	--	Publications, disk copying, workshop materials, and travel. Decreases in F.Y. '86 and '87 reflect more computer sites than hard copy sites, and better estimates of printing needs.
Indirect Costs	--	Administrative, fiscal, postage, phones, etc., based on 23% of staff salaries. Small figure in F.Y. '85 reflects use of contracted workers rather than classified employees.

SUMMARY OF FISCAL PERSPECTIVE

One clear trend is that MCIS has moved toward fiscal self-sufficiency. This has been due primarily to growth in subscriptions and a bare bones operating budget. It is also clear that some grant money and/or a significant increase in subscriptions is going to be needed if projected expenditures are to be met in F.Y. '87.

RECOMMENDATIONS SECTION

Where can MCIS contribute to carrying out the statewide jobs policy? How can MCIS assist with the transition from school to work or education training? What development is needed for MCIS to more effectively or efficiently provide career information tools? Recommendations are listed for the Legislature and for MCIS operation.

Recommendations to the Legislature	Rationale
1. Support the utilization of MCIS as a part of the 1985 Full Productivity and Opportunity legislation.	Because MCIS is operational, it would be cost effective to utilize MCIS tools to assist persons being served by re-structured state job training programs.
2. Continue to support the availability of labor market statistics from the Department of Jobs and Training.	The fees to user agencies and organizations would be lower than if fees support this function; up-to-date information about occupations and preparation for them would be assured.
3. Continue the present system of reimbursement for computer software under the Technology program in secondary schools.	Educators will be assisted and encouraged to increase their productivity by using Technology-assisted methods in spite of fiscal limitations.

Recommendations For MCIS Operation	Rationale
1. Continue to market MCIS to educational, job training, and social service agencies so its use can increase productivity in providing career information to youth and adults.	Additional youth and adults will have access to useful career information; a larger number of user agencies and organizations will reduce the user fee to each of them.
2. Market MCIS to the private sector actively involved in linking people, occupations, and education.	Private sector constituencies can serve youth and adults; can contribute to cost-efficiency of the system.
3. Continue to link MCIS with other data systems and career tools to increase the flexibility and cost-effectiveness for local MCIS users.	Individuals make career decisions based on a variety of information, so accessing of the various types of information is important to the agencies that serve them.
4. Integrate MCIS tools into a statewide strategy for assisting secondary schools to carry out the State Board rules for career education.	An operational system for assisting youth with occupational exploration and decision making.

Recommendations For MCIS Operation	Rationale
5. Participate in conferences to demonstrate how MCIS can increase the efficiency of providing career information by featuring successful MCIS users in secondary schools, higher education, job training agencies, libraries, and others.	MCIS users would learn from each other about ways to use computer-assisted career information as a component of their programs for youth and adults.
6. Explore public service announcements and information for clients and parents about the availability and use of MCIS for career decision making.	Youth and adults who are trying to match their interests and aptitudes with available employment and education training will know this resource.
7. Continue to develop new areas complementary to present MCIS components that enhance services for clients and students.	When cost-effective to develop tools on the statewide level, pool resources for such development.
8. In developmental efforts, focus on computerized self-assessment tools to complement the existing components relating to available occupations and education/training.	Long-range success at facilitating with career decision making is dependent upon interest and aptitude, not simply employment availability.
9. Create a network list with names and phone numbers of users to promote an exchange of ideas on use of MCIS tools within a career-related program.	Staff in agencies and organizations using MCIS will learn from each other when they contact colleagues.

JD:S151c
1/8/86

ADDENDUM A

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Table 1

Comparison of CIS States Relative to Staff FTE, Special Features and Number of Sites*

CIS State	FTE	Special Features	Additional Plans	Site
1) Alaska	5.5	a) Supply/Demand File	a) Micro-CIS	265
2) California	8.0	a) Micro Skills b) National School File		233
3) Colorado	6.0	a) National School File b) Physical Demands File	a) Micro CIS b) Military Occ. File	180
4) Georgia	8.0	a) Micro Skills b) Micro CIS	a) Military Occ. File	153
5) Hawaii	12.0	a) Micro CIS b) National School Source		92
6) Idaho	5.0	a) Micro CIS b) Employers File c) Supply/Demand File	a) Military Occ. File	114
7) Illinois	14.0	a) Micro Skills	a) National School File	236
8) Iowa	10.0	a) Career Educa. Infusion b) Vietnamese, Laotian & Braille Versions	a) Micro CIS	724
9) Minnesota	5.0	a) Micro CIS b) Micro Skills c) National School File d) Physical & Mental Demands File w/Job Site Modifications e) Short-Term Training Book f) High School Planner g) Financial Aids Book	a) Supply/Demand File w/MOICC b) Military Occ. File	180
10) Montana	5.0	a) Financial Aid	a) Micro Skills	76
11) Nebraska	3.6	a) Abbreviated Files	a) Micro Skills	277
12) New York City	7.0	a) Financial Aid		62
13) Oregon	11.7	a) Micro CIS b) National School File c) Job & Worksite Mod. d) Short-Term Training Book e) High School Planner	a) Military Occ. File	330
14) Wyoming	3.0	a) 15 Border Schools File		80

* Source: 1984-85 Directory of State-Based Career Information Delivery Systems. Association of Computer-Based Systems for Career Information, 1985 (pp. 94).